Math 1
Exam 8 Review

The exam on Thursday, March 2 will cover all of the standards from module 8:

- **8A**: **display data** Students use appropriate displays of data (including two-way tables, scatter plots, and residual plots).
- **8B**: **data analysis** Students interpret center, shape, and spread of data sets.
- **8C**: **two − way tables** Students interpret two-way frequency tables.
- **8D**: **frequency** Students understand and use relative and conditional frequencies.
- **8E**: **correlation coefficient** Students determine and interpret the correlation coefficient for relationships that are approximately linear.
- **8F**: **residual plots** Students interpret and use residual plots to analyze the strength of a linear model for data.

Graphical Displays. For graphical displays, do the following:

- Make the displays as neat as possible. You may want to use a striaghtedge and/or graph paper.
- Every display *must* have a title that relates to the data being displayed.
- If a graphical display has more than one axis, label the axes appropriately. The general labels x and y are *not* appropriate for data.

Averages. The following are important facts about averages:

- Do *not* say "the average". There is more than one average.
- The mode of a set of data is the piece of data that occurs the most frequently. If there is a two-way tie, then both of them are modes (and the data set is "bimodal"). In general, if there is more than a two-way tie, then the set of data has no mode.
- The mean of a set of measurement data is the sum of all of the data divided by the number of pieces of data.
- For a set of measurement data with an odd amount of pieces of data, the median is the piece of data in the very middle when the data are in numerical order.
- For a set of measurement data with an even amount of pieces of data, the median is the mean of the two pieces of data in the very middle when the data are in numerical order.

Numbers for Box and Whiskers. The following are important facts about numbers involved in making box and whisker plots (also called boxplots):

- The minimum of a set of measurement data is the smallest piece of data.
- The maximum of a set of measurement data is the largest piece of data.
- Q_1 is the median of the half of the data that are below the median. (For an odd amount of data, the lower half excludes the median.)
- Q_3 is the median of the half of the data that are above the median. (For an odd amount of data, the upper half excludes the median.)

There is more information on the next page.

What r Means. If the diagnostics are on, the graphing calculator will give a value of r for a linear regression. This is what r tells you:

- If $r > 0$, then, in general, as the value of one variable increases, the other variable also increases. Thus, the slope of the line of least squares is positive.
- If $r < 0$, then, in general, as the value of one variable increases, the other variable decreases. Thus, the slope of the line of least squares is negative.
- The further r is from 0, the better the line approximates the data.
- If $r^2 = 1$, then the line of least squares passes through *all* of the data points.